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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,927	01/24/2002	Brian S. Medower		4017

7590 05/16/2006
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1762 Technology Drive
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EXAMINER

MAYES, MELVIN C

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/056,927	Applicant(s) MEDOWER ET AL.	
	Examiner Melvin Curtis Mayes	Art Unit 1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-26 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-11 and 13-26 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

(1)

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 8, 2006 has been entered.

Claim Rejections - 35 USC § 112

(2)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

(3)

Claims 1-11 and 13-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 1734

The specification does not describe the dielectric layer being deposited to have a thickness that enhances a contrast between the first and second states of the phase-change material.

(4)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

(5)

Claims 1-11 and 13-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 19 claim “the dielectric layer being deposited to have a thickness that enhances a contrast between the first and second states of the phase-change material.” It is not clear what it meant by “contrast.” For purposes of examination, “thickness that enhances a contrast” is interpreted to mean that the thickness of the deposited dielectric layer is such that change in optical phase between the two states of the phase change material is greater than the change in optical phase observed when no dielectric layer is deposited.

Claim Rejections - 35 USC § 103

(6)

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(7)

Claims 1-4, 6-11 and 13-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2001/0016301 in view of Pan et al. 4,960,680 and JP 3-86943.

Edwards discloses a method of making optical disk from a master comprising: providing a glass master substrate; depositing a photosensitive material (photoresist) on the substrate; exposing the material to laser on a recording table and developing (etching) the photosensitive material to form grooves; forming a first stamper from the master disk; forming a second stamper from the first stamper; and forming replica disk from the second stamper by molding. The deposited photosensitive material and formed grooves may have a depth typically of between 50 and 120 nm. The replica disk may be optical data disk which include data pits, grooves, bumps or ridges and land or land areas and of various types of recordable optical disk such as phase change disk formats and has wide, flat smooth lands for positioning user recorded data thereon. Edwards discloses that the father stamper (first stamper) can be made from the master disk by electroforming using a nickel bath and a mother stamper (second stamper) can be made from the father stamper by electroforming using a nickel bath [0001]-[0075]. Edwards does not specifically disclose using the mother stamper (second stamper) to make a first surface optical disk of plastic material, deposited phase-change material and deposited dielectric layer over the phase change material and consisting of no further layers.

Pan et al. teach that a write-once recordable optical element can comprise a substrate such as of polycarbonate, optical recording layer of SbInSn alloy and protective overcoat layer on the optical recording layer (col. 2-6).

JP 3-86943 (JP '943) teaches that optical recording medium is provided with high mechanical strength and peeling and cracking prevented by providing, on at least one surface of the recording layer, a protective film of silicon oxynitride. JP '943 teaches for a recording layer of thickness of 80 nm, a protective layer of silicon oxynitride of thickness 80 nm is provided (Abstract and consultation with translator).

It would have been obvious to one of ordinary skill in the art to have modified the method of Edwards for making an optical disk such as recordable optical disk of phase change disk format by forming the disk by depositing phase-change material of SbInSn alloy directly on a molded polycarbonate replica disk, as Pan et al. teach that a recordable optical disk can be made of an injection molded polycarbonate substrate on which is directly deposited a recording layer of SbInSn alloy. Depositing a dielectric layer of silicon oxynitride on the SbInSn alloy phase-change material would have been obvious to one of ordinary skill in the art, as Pan et al. teach that a coating of wear resistant material, anti-reflective dielectric overcoat or protective overcoat is provided on the phase-change alloy, and JP '943 teaches that silicon oxynitride can be provided on the recording layer of optical recording medium to provide high mechanical strength and reduced peeling and cracking or to provide a protective layer. The use of silicon oxynitride as a wear resistant material, dielectric protective overcoat on the SbInSn alloy phase-change material on the polycarbonate substrate would have been obvious to one of ordinary skill in the art, as taught by JP '943.

Providing the silicon oxynitride protective dielectric layer of thickness of 80 nm would have been obvious to one of ordinary skill in the art, as taught by JP '943, as thickness of protective silicon oxynitride provided on a recording layer of thickness 80 nm. By providing a silicon oxynitride protective dielectric layer of thickness of 80 nm on a phase change material layer of similar thickness, a dielectric layer is obviously deposited having a thickness that enhances contrast between first and second states of the phase-change material. As set forth by Figure 11 of the present specification, any thickness of protective dielectric layer up to 125 nm provides change in optical phase between the two states of the phase change material that is greater than the change in optical phase when no dielectric layer is provided. Thus the thickness suggested by JP '943 provides a protective dielectric layer that obviously results in a greater change in optical phase between the two states of the phase change material compared to no dielectric layer provided.

(8)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2001/0016301 in view of Pan et al. 4,960,680 and JP 3-86943 as applied to claim 4, and further in view of Dobbin RE 34,506.

Dobbin teaches that for manufacturing an optical disc master, an alternative to the photoresist mastering system involves the use of a material which undergoes ablation when exposed to laser, the advantages over the photoresist process including reduction in process steps such as curing (exposing) and developing (etching) which results in less costly procedure and shorter completion time (Col. 2, lines 23-50).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined for making a first surface optical disk by providing the master with grooves using a photoresist material which undergoes laser ablation instead of using a photoresist material which undergoes exposing and etching, as taught by Dobbin, to reduce process steps which results in less costly procedure and shorter completion time. The use of photoresist material which undergoes laser ablation would have been obvious to one of ordinary skill in the art as an alternative to a photoresist which undergoes laser exposing and etching to form a master with less process steps, as taught by Dobbin.

Response to Arguments

(9)

Applicant's arguments filed May 8, 2006 have been fully considered but they are not persuasive.

Applicant argues that Pan is directed to a second surface optical disk having a thick defocusing layer on the phase-change material and JP '943 is directed to different form of disk.

(10)

The Pan et al and JP '943 are not limited as argued. Pan et al. clearly teach that a write-once recordable optical element can comprise a substrate such as of polycarbonate, optical recording layer of SbInSn alloy and protective overcoat layer on the optical recording layer, only three layers. There is no mention of a thick defocusing layer, as argued. JP 3-86943 (JP '943) teaches that an optical recording medium can be provided with a protective silicon oxynitride film on only one surface of the recording layer.

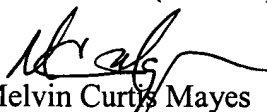
Conclusion

(11)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Melvin Curtis Mayes
Primary Examiner
Art Unit 1734

MCM
May 12, 2006